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EXAMINER				
NELSON, MICHAEL B				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/541,147

Applicant(s)

STEINBACH, PAOLO

Examiner

MICHAEL B. NELSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/17/09.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 84-116 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 84-116 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's amendments to the claims filed on 11/17/09 have been entered. Claims 1-35, 66-67, 70-72 are cancelled and claims 84-116 are currently under examination on the merits. The 112 2nd paragraph rejections of the previous office action are withdrawn; however, new 112 1st and 2nd paragraph rejections have been made.
2. The substitute specification filed 11/17/09 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because: the statement as to lack of new matter under 37 CFR 1.125(b) is missing.

Examiner's Note

3. The examiner would like to reiterate the previous marks made related to product by process limitations: The use of produce-by-process limitations has been noted in the claims, such as, for example, "hard heating," "infrared radiation," and "calendaring with heated rollers". Even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 93, 96, 98-100 and 106 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
6. Claims 93 and 96 recite that the time for heating have a lower limit of 1 second. No support for this limitation is found in the instant specification.
7. Claims 98 and 99 recite the phrase multi-step heating which lack disclosure in the specification. While pre-heating is mentioned, multi-step heating, being a broader limitations than pre-heating, would include various other heating operations which are not adequately disclosed.
8. Claim 100 recites that the fabric be expanded during heating however there is no disclosure in the specification to support this limitation. The only mention of expansion is at page 5 where it is mentioned that the material expands to close a hole caused by a nail, without any mention of heating.
9. Claim 106 recites “mechanical coupling” which lacks adequate disclosure in the specification.
10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 84-116 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 83, 91 and 92 recite the limitation that the thermoplastic fibers comprise “fibers having at least two melting temperatures.” This phrase renders the claims vague and indefinite in that it is unclear if each fiber is meant to have multiple melting temperatures (i.e. a multicomponent fiber) or if the overall blend of fibers is meant to have some fibers having one melting temperature and some different fibers having a different melting temperature.
12. Claim 99 recites the limitation “the multi-step heating.” There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

13. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 84, 90-93, 108, 109, 112-114 are rejected under 35 U.S.C. 102(b) as being anticipated by Peoples Jr. (U.S. 4,568,581).

Regarding claim 84, Peoples Jr. discloses a thermoformable fibrous article of interlaced, non-woven, different melting point, thermoplastic fibers which are subjected to heat and pressure to cause melting of some fibers and fusing together of all fibers at one surface depth, while leaving the fibers at other depths in the fibrous phase (See Abstract and Fig. 5.).

Regarding claims 90-93, 109, 112-114, Peoples Jr. discloses all of the limitations as set forth above. Additionally, Peoples Jr. discloses that the fibers having more than one melting temperature are fused along the surface and are fibers of interalial, polyethylene (C3, L55-60, Abstract and Fig. 5). Fig. 1 and 2 show the embossed, curved-shaped panel after the heating and molding operations of Fig. 7 in which it is intended for use in automobile panels (C1, L5-25). While Peoples Jr. does not explicitly disclose the process steps of claim 93, the product produced by the process of Peoples Jr. would not be different than the instantly claimed product and therefore the product-by-process limitations of claim 93 are given no patentable weight and Peoples Jr. reads on the claim (therefore the rejection of the product-by-process claims below are moot and are only provided for the sake of argument).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 85-87, 89, 93, 108, 115 and 116 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples Jr. (U.S. 4,568,581) as applied to claim 84 above, and further in view of Desroches et al. (U.S. 2002/0137421).

Regarding claim 85, Peoples Jr. discloses all of the limitations as set forth above. Peoples Jr. does not disclose that both surface layers of the panel be fused together. Desroches et al. discloses applying the surface melting heat to only the two outer surfaces of the fibrous article ([0012]). Desroches also discloses the use of bi-component fibers with a core-sheath configuration with a lower melting point resin as the sheath ([0029]). At the temperature described for heating the article, the sheath, and not the core, melts, thereby causing the bicomponent fibers to partially lose their fibrous phase. The use of bicomponent fibers is disclosed as being beneficial due to the increased in fiber bonding strength ([0029]). In the examples a majority of the fiber (75%) are of the bicomponent type, with the other 25% being larger denier fibers having the same type of material as the core of the bicomponent fiber (i.e. high melting point). Under these conditions, and with preferential heating on the surfaces ([0012]), a majority of the fibers would be exposed to melting conditions causing them to partially lose their fibrous phase (i.e. the melting of the sheath of the bicomponent fibers on the surfaces) and fuse together. The central regions away from the heated surfaces would have maintained their fibrous phase and there would be intermediate positions between the outermost surface and the absolute center where there is an intermediate amount of fiber phase transition (i.e. continuous gradient).

The inventions of both Peoples Jr. and Desroches et al. are drawn to the field of thermoformable fibrous materials and therefore it would have been obvious to one having

ordinary skill in the art at the time of the invention to have modified the fibrous article of Peoples Jr. by preferentially heating the article only on the surfaces and using a majority of bicomponent fibers as taught by Desroches et al. for the purposes of imparting improved fiber bonding strength ([0029]).

Regarding claims 86, 87, 89, 93, 108, 115 and 116, modified Peoples Jr. discloses all of the limitations as set forth above. Surface treating both sides of the article only to melt the surface fibers would result in a greater percentage of the fibrous state fibers being away from the surface areas. Melting both sides would be a symmetric arrangement and leaving the middle of the panel un-melted would result in a non-linear arrangement. In the process of selective melting the temperature used is 180 degrees Celsius, and the weight basis of the article is 1189 g/m², which is within the instant ranges of claim 93 ([0047]). Regarding the time taken to apply the heat to the surface of the panel, one having ordinary skill in the art would have adjusted the time that the heater spends in contact with the panel in order to melt the surface fibers only, as taught by Desroches et al. Mold and counter molds are disclosed for shaping the panel in Fig. 9 and 10 of Peoples Jr. Desroches discloses that the panel would be useful for domestic furnishings ([0003]) which is a type of building structure. Also it is disclosed that it would be useful to implement the panel in any application in which weight penalty is a factor, which includes shipping and railroad vehicles.

Regarding the claimed different thicknesses, while modified Peoples Jr. does not explicitly disclose different thicknesses of the fused and non-fused fiber regions, one having ordinary skill in the art would have found it obvious to have made the different regions have

different thicknesses in order to optimize the degree of mechanical integrity (i.e. how many fibers are fused) of the final product.

18. Claims 88, 94, 95, 102, 104-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples Jr. (U.S. 4,568,581) in view of Desroches et al. (U.S. 2002/0137421), as applied to claim 84 above, and further in view of Copperwheat (U.S. 6,008,149) with evidentiary support from Heguri et al. (U.S. 6,485,825).

Regarding claims 88, 94, 95, 104-107, modified Peoples Jr. discloses all of the limitations as set forth above. In the process of selective melting, as in Desroches et al., the temperature used is 180 degrees Celsius, and the weight basis of the article is 1189 g/m², which is within the instant range of claim 102 ([0047]). Modified Peoples Jr. does not disclose the addition of decorative fabrics to the surface of the article. Copperwheat discloses a polymeric article with interlayer physico-chemical fiber bonding (C5, L1-35). Copperwheat also discloses applying adhesive layers to the fibrous laminated article with flame lamination (C4, L35-50), which would result in increased surface polarity, (See Heguri et al., C14, L1-10). The adhesive layer is disclosed for use with a facing fabric layer (a type of mat or an additional layer) (C3, L30-55). Copperwheat's three layer panel (C5, L1-15) has first and second layers with differing weight basis and therefore is asymmetric in terms of the distribution of interlaced fibers.

The inventions of both Peoples Jr. and Copperwheat are drawn to the field of thermoformed fibrous articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the fibrous article of Peoples Jr. by

adding an adhesive and decorative facing fabric as taught by Copperwheat for the purposes of imparting increased marketability through improved aesthetic appeal.

19. Claims 96-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples Jr. (U.S. 4,568,581) in view of Desroches et al. (U.S. 2002/0137421) in view of Copperwheat (U.S. 6,008,149), as applied to claim 94 above, and further in view of Fottinger et al. (U.S. 5,387,382).

Regarding claims 96-101, modified Peoples Jr. discloses all of the limitations as set forth above. Modified Peoples Jr. discloses the temperature, mold/countermold 3-D shaping, and time limitations for the heating process as explained above; however, modified Peoples Jr. does not disclose the use of heated calendaring rollers for compression. Fottinger et al. discloses the use of pre-compaction of a fiber article between heated rollers, before subsequent heating processes, in order to improve inner coherence (C2, L60-65). Multiple heating operations at different temperatures are disclosed (C4, L35-55). During heating, the material would expand to some degree. Regarding the amount of compression (i.e. the reduction in thickness) one having ordinary skill would have adjusted the degree of compression to optimize the degree of inner coherence.

The inventions of both Peoples Jr. and Fottinger et al. are drawn to the field of heated fibrous articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the process of heating the fibrous articles of Peoples Jr. by adding the preheating step of pre-compaction as taught by Fottinger et al. for the purposes of imparting improved inner coherence.

20. Claims 103 and 110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples Jr. (U.S. 4,568,581) in view of Desroches et al. (U.S. 2002/0137421) in view of Copperwheat (U.S. 6,008,149), as applied to claim 94 above, and further in view of Bigelow-Sanford Inc. (G.B. 1,068,432).

Regarding claims 103 and 110, modified Peoples Jr. discloses all of the limitations as set forth above. Modified Peoples Jr. does not disclose "hard heating" the surfaces of the article at a temperature above the highest melting point. Bigelow-Sanford Inc. discloses a non-woven fibrous article which is heated on its surface to a temperature above the melting point of the thermoplastic fiber used (i.e. propylene), while leaving the inner fibers unmelted (i.e. a relatively short period of time of exposure) (Page 4, L33-45). The surface melting is discloses as providing a hardened, smoother and more rigid surface (Page 3, L40-45 and Fig. 7).

The inventions of both People Jr. and Bigelow-Sanford Inc. are drawn to the field of fibrous thermoformable articles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the surface heating of People Jr. by applying the brief higher heat (i.e. hard heat) as taught by Bigelow-Sanford Inc. for the purposes of imparting increased surface hardness.

21. Claim 111 rejected under 35 U.S.C. 103(a) as being unpatentable over Peoples Jr. (U.S. 4,568,581), as applied to claim 84, and further in view of Hansen et al. (U.S. 6,277,312).

Regarding claims 111, modified Peoples Jr. discloses all of the limitations as set forth above. Modified Peoples Jr. does not disclose the addition of an outer hard coat layer. Hansen et al. discloses the use of an external hard coat layer on a molded automobile part in order to

protect the decorative coating below (C3, L5-15). The hard coat layer would have a smooth surface.

The inventions of modified People Jr., and Hansen et al. and are drawn to the field of molded articles for automobiles and therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the molded article of modified People Jr. by adding a hard coat layer as taught by Hansen et al. for the purposes of imparting improved protection of the decorative qualities.

Response to Arguments

22. Applicant's arguments filed on 11/17/09 are moot in light of the new grounds of rejection above which were necessitate by applicant's amendments. Arguments which are still deemed to be relevant are addressed below.

Regarding applicant's arguments directed towards the "fused" nature of the fibers on the surface of the panel, it is believed that the applicant is using the term "fused" to imply that the fused fibers are melted and no longer in a fibrous state. This is contrary to the meaning one having ordinary skill in the art would ascribe to the term. For something to be fused then it must be joined to something else as if by melting together (Merriam Webster). This does not mean that both objects being fused together are both melted. For example, referring to the cited Fig. 4 from Peoples Jr., the black fibers are melted and fused together with the white fibers. Even though the white fibers are not melted, all the fibers are joined together via the melting and resolidification of the black fibers and therefore would be considered fused together according to one having ordinary skill in the art. Applicant is advised that the term "fused" is a broader term than the term "melted" used in the previous set of claims.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MICHAEL B. NELSON** whose telephone number is (571) 270-3877. The examiner can normally be reached on Monday through Thursday 6AM-4:30PM.

24. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MN/
01/09/09

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